

# **IMPROVING WINTER MAINTENANCE FOR OPEN GRADED FRICTION COURSE (OGFC) PAVEMENTS IN TENNESSEE.**

**RES 2019-25**

This study is conducted by the University of Tennessee at Chattanooga (UTC) on behalf of the Tennessee Department of Transportation (TDOT) with the objective of improving winter maintenance of OGFC pavements in Tennessee.

## **INTRODUCTION**

Open graded Friction Course (OGFC) is an asphalt wearing course comprising asphalt mix with mostly single size aggregates in order to provide higher void ratio (18% to 20%) in the mixture. This is not a structural layer but is mostly considered as a safety layer. Benefits of OGFC include [California DOT, 2006; Taylor G., 2014]:

- Increased friction between the surface and tires;
- Reduced hydroplaning and splashing of water in wet condition;
- Improved driving on wet conditions;
- Improved visibility of pavement markings in wet conditions; and
- Reduced noise by 3 to 5 decibels.

OGFC has been used as a sacrificial wearing course over Densely Graded Asphalt Course (DGAC) pavement in areas that experience high traffic volumes and moderate to heavy rainfall. It can also be placed over a porous asphalt pavement, which serves as a permeable pavement. However, when placed over DGAC it is more prone to pavement distresses such as cracking, clogging, debonding and raveling, resulting to a shorter service life [California DOT, 2006].

Winter maintenance of OGFC pavements is the biggest challenge even to southern states. OGFC experiences lower temperature and longer periods of cold temperature than DGAC, this result to more applications of deicing agents (Liu et. al. 2010). In Texas, for instance, deicing agents is considered the most effective method for winter maintenance on OGFC (Yildirim et. al, 2007).

## **SYNOPSIS OF THE PROBLEM BEING RESEARCHED**

Like many other states, Tennessee faces similar challenges on winter maintenance of OGFC pavements. Furthermore, within Tennessee, there are OGFC projects that performed well, and some did not perform as well. What made some project perform better than others? This study seeks to study the existing OGFC projects in Tennessee, their design, winter maintenance practices, challenges and success on the performance of OGFC pavements and recommend best practices that could be shared within the state among TDOT regions and beyond. The objectives of this research project are to:

1. Document the state of practice in OGFC winter maintenance practices in the state of Tennessee.
2. Identify challenges faced by the four TDOT regions on OGFC winter maintenance in Tennessee.
3. Identify OGFC winter maintenance practices that worked in Tennessee (success stories).
4. Recommend best practices for OGFC standards and winter maintenance for the state of Tennessee.